Grazing Management for Fall-Grown Oat Forages

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Oats seeded in late-summer can provide an excellent forage source for grazing livestock, potentially extending the fall grazing season through October and well into November, when the growth rate of perennial cool-season grasses is generally poor. Winter-wheat and cereal-rye cultivars planted in the late-summer remain vegetative (do not joint) until the following spring; in contrast, oat cultivars will joint, elongate, and can even produce a seedhead during the fall. As a result of these differences in physiology, oat cultivars will produce more fall forage than wheat by about a 2:1 ratio, regardless of fall weather conditions or harvest date. Unfortunately, oat cultivars also will not survive the winter; therefore, their use following late-summer establishment is strictly as fall forage, and must be completed by winter.

The near certainty of winterkill for fall-grown oat may eliminate some herbicide requirements the following spring before a new crop can be established, making this annual forage attractive for crop rotation or pasture renovation. Alternatively, producers could also consider mixtures of cereal grains, such as oats and wheat, to maintain some ground cover and avoid re-establishment of pastures in early-spring. This approach may limit fall forage yield, but would permit grazing of the surviving high-quality wheat the following spring.

Due to the lack of a strong regrowth potential, fall-grown oat should be considered a one-pass stockpiled forage for late-fall grazing. Use strip grazing techniques to allocate forage in one- to two-day increments to maximize grazing utilization, and minimize the opportunity for livestock to waste available forage from non-grazing impacts such as defecation, trampling, or resting activities.

Two years of grazing data at the Marshfield Agricultural Research Station illustrate the impacts of canopy height on utilization of oat pastures (Table 1). Each fall, oat pasture was allocated to (~1,100 lbs) grazing dairy heifers at a rate of 20 lbs DM/heifer for about 6-hours daily. Heifers were then returned to the barn and supplemented with a forage-based total mixed ration.

Table1. Estimates of forage utilization by dairy heifers allocated 20 lbs DM as fall-oat forage for a single grazing event lasting approximately 6 hours (8:30 am-2:30 pm) daily. Heifers were returned to the barn after grazing and received a mixed ration in addition to the oat pasture.

Date	2011			2012		
	Canopy Height *(inches)*	Initial Forage Mass *(lbs DM/ac)*	Apparent Utilization *%*	Canopy Height *(inches)*	Initial Forage Mass *(lbs DM/ac)*	Apparent Utilization *%*
Sept 24-30	24	2,427	…	…	…	…
Oct 1-7	28	4,513	48.2	…	…	…
Oct 8-14	35	4,767	53.3	13	1,924	…
Oct 15-21	35	6,408	57.2	14	1,565	79.1
Oct 22-28	36	7,099	61.9	17	1,994	89.4
Oct 29-Nov 4	39	7,964	55.6	19	2,158	84.9
Nov 5-11	37	7,333	53.7	19	2,351	90.4
Nov 12-18	32	7,068	42.4	17	2,127	77.8

During 2011, favorable growing conditions resulted in oat plants reaching more advanced growth stages and a maximum canopy height of about 39". Due to extended drought during 2012, oat plants were less mature, and considerably shorter in height, reaching a maximum of only 19". Apparent utilization of standing oat forage varied between 42.4-61.9% in 2011, but was much improved (77.8-90.4%) during 2012. During the grazing trial, the daily allocation of standing forage was set by the terms of the experiment, and not altered; however, livestock producers would have flexibility in adjusting daily forage allocation to manage utilization and minimize forage refusal. Dairy heifers in this trial preferentially grazed leaf tissue, which has better nutritive value compared to stem; therefore, any decision to reduce the daily forage allocation in an effort to improve utilization of pasture (especially less-desirable stems) must be weighed against the potential for depressing animal performance.

Fall oat should be seeded in central Wisconsin during early-August, with grazing initiated during the last week of September during most years; timing for initiation of grazing should coincide approximately with elongation of oat stems (post-jointing). Fall forage production will likely be <50% of peak fall yield by that date, but it will continue to increase throughout October. If grazing is initiated too soon, livestock may consume available pasture too rapidly, without potential for significant forage regrowth. In contrast, delaying the onset of grazing too long may result in forage losses as a result of early snowfall events or other inclement weather. Fall-grown oat will tolerate numerous frosts, particularly if plants are at the stem-elongation or boot stages of growth, and Marshfield research suggests that grazing can continue until late-November if it is not prohibited by extensive snow cover. It also should be noted that plants mature very slowly (if at all) after mid-October, which contrasts sharply with the rapid maturity changes that occur following a conventional spring seeding.

Lower lignin concentrations are commonly observed within fall-grown oat forages due to cool or cold growing conditions and disruption of normal maturation by decreasing day length. Structurally, lignin serves as the portion of the cell wall that gives plants rigidity, and allows them to stand erect. With reduced lignin concentrations, oat plants are prone to lodging during snowfall (photo); while this will not prevent grazing, it may reduce forage utilization, and obviously would eliminate the possibility of harvesting excess forage as silage. However, the risks associated with potential lodging during snowfall events are offset somewhat by improved fiber digestibility and greater energy density within the forage.

Experiments conducted at Marshfield included dairy heifers untrained to electric fencing systems. Heifers were trained in small groups with an electric wire placed inside a fenced corral, and this process was repeated in somewhat less confined situations until all animals were respectful and comfortable with being handled/moved around electric fences.

Summary

Fall forage production of oat generally will out-yield winter wheat or cereal rye by about a 2:1 ratio, regardless of weather conditions or harvest date because oat plants will joint, elongate, and produce a seedhead before winter, while winter wheat or cereal rye will remain vegetative until spring. Fall-grown oat provides little potential for regrowth, and will winterkill with near certainty in Wisconsin. Therefore, fall-grown oat provides a fall stockpiled forage option for grazing, with best utilization accomplished by efficient, one-time removal of standing forage. A single 'lead' wire can be advanced daily to prevent trampling and waste, and to allocate forage daily based on producer management goals and requirements. Producers will need to evaluate the nutrient requirements of their livestock classes against the quality of fall-grown oat coupled with other harvested forages and/or supplements to meet their desired animal performance goals. Additional information related to utilization of oat as a fall annual forage is available at: www.fyi.uwex.edu/forage.